



South Coast  
**AQMD**

# **SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

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## **ANNUAL AIR QUALITY MONITORING NETWORK PLAN**

July 1, 2017

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## **INTRODUCTION**

An annual review of the Air Quality Monitoring Network is required by Federal Regulations as a means to identify and report needs for additions, relocations, or terminations of monitoring sites or instrumentation. This report describes the network of ambient air quality monitors in the jurisdiction of and operated by the South Coast Air Quality Management District (SCAQMD). It includes a review of actions taken during the 2016-2017 fiscal year and plans for action in the year ahead. This plan addresses the requirement for an annual network plan as listed in Title 40, Part 58, Section 10 of the Code of Federal Regulations (40 CFR § 58.10). Regulations require the report be submitted to the U.S. Environmental Protection Agency (EPA) by July 1 of each year after a 30 day public comment period. All monitors meet the requirement of appendices A, B, C, D, and E as required in 40 CFR § 58.10(a)(1) where applicable.

The SCAQMD staff, along with the California Air Resources Board (CARB), conducted an extensive review of the air monitoring sites in the South Coast Air Basin (SCAB) in late 1980. During the review, State and Local Air Monitoring Stations (SLAMS) designations, site type, and spatial scales of representativeness were assigned to the criteria pollutants monitored at each site. Since that time, the EPA Region IX and CARB staff visited selected sites to confirm compliance with applicable siting criteria and related requirements. The most recent site visits occurred in 2013 to conduct a comprehensive Technical System Audit (TSA) of the ambient air monitoring network. Each year, SCAQMD staff conducts an annual review of its air monitoring network and submits it to the EPA. The review process focuses on current and future network air monitoring strategies and network changes are made in consultation with the EPA and CARB. When re-location of monitoring sites is required, site reports are updated in the EPA's Air Quality System (AQS) to document compliance with established siting criteria for the new locations.

### **Public Comments**

Pursuant to Federal regulations, a draft plan was made available for public inspection from May 24 through June 24, 2017 for a comment period 30 days. No comments were received during the period. Hard copies of the final document are available June 27, 2017 at the SCAQMD's Public Information Desk in Diamond Bar, CA. The document is also available on the SCAQMD website as of June, 27, 2017 in the drop down menu under the "Library", "Clean Air Plans" and "Air Monitoring Network Plan." (<http://www.aqmd.gov/home/library/clean-air-plans/monitoring-network-plan>). The final document is available to the EPA June 27, 2017 and a hardcopy will be provided.

### **Network Design**

The SCAQMD operates 38 permanent monitoring stations and 5 single-pollutant source impact Lead (Pb) air monitoring sites in the SCAB and a portion of the Salton Sea Air Basin in Coachella Valley. This area includes Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The newest permanent sites were added as part of the near road monitoring network at Ontario Etiwanda and Route 60; Long Beach Route 710 and Anaheim Route 5. The newest source impact Pb sites were added in January 2010 as required by EPA regulation. Table 1 provides a list of monitoring locations, the EPA AQS site codes, and the pollutants measured at each site. Table 2 provides the spatial scale and the site type for each monitor at all sites.

Table 3 describes the monitoring purpose for the monitors at each site. Table 4 describes the site type, spatial scale and monitoring purpose for continuous particulate analyzers at each site. A requirement of the annual network plan, the *monitoring purpose* is the reason why a certain pollutant is being measured at a certain site.

A list and description of monitoring purposes are provided below and portions are adapted from the CARB annual network plan for 2007.

*Background Level* monitoring is used to determine general background levels of air pollutants as they enter the SCAB.

*High Concentration* monitoring is conducted at sites to determine the highest concentration of an air pollutant in an area within the monitoring network. A monitoring network may have multiple high concentration sites (i.e., due to varying meteorology year to year).

*Pollutant Transport* is the movement of pollutant between air basins or areas within an air basin. Transport monitoring is used to assess and mitigate upwind areas when transported pollutant affects neighboring downwind areas. Also, transport monitoring is used to determine the extent of regional pollutant transport among populated areas and to rural areas.

*Population Exposure* monitoring is conducted to represent the air pollutant concentrations that a populated area is exposed to.

*Representative Concentration* monitoring is conducted to represent the air quality concentrations for a pollutant expected to be similar throughout a geographical area. These sites do not necessarily indicate the highest concentrations in the area for a particular pollutant.

*Source Impact* monitoring is used to determine the impact of significant sources or source categories of air quality emissions on ambient air quality. The air pollutant sources may be stationary or mobile.

*Trend Analysis* monitoring is useful for comparing and analyzing air pollution concentrations over time. Usually, trend analyses can be used to assess the progress in improving air quality for an area over a period of many years.

*Site Comparison* monitoring is used to assess the effect on measured pollutant levels of moving a monitoring location a short distance (usually less than two miles). Some monitoring stations become no longer usable due to development, change of lease terms, or eviction. In these cases, attempts are made to conduct concurrent monitoring at the old and new site for a period of at least one year in order to compare pollutant concentrations.

*Real Time Reporting/Modeling* is used to provide data to EPA's AIRNOW system which reports conditions for air pollutants on a real time basis to the general public. Data is also used to provide accurate and timely air quality forecast guidance to residents of the SCAB.

Multiple purposes for measuring a pollutant at a particular site are possible. There is some overlap between site type and monitoring purposes as defined by EPA and given in Tables 2, 3, and 4.

**TABLE 1. List of Monitoring Sites**

	Location	AQS No.	Pollutants Monitored	Start Date
1	Anaheim	060590007	CO,NO2,O3,PM10,PM2.5	08/01
2	Anaheim Route 5 Near Road	060590008	CO, NO2	01/14
3	ATSF (Exide)	060371406	Pb	01/99
4	Azusa	060370002	CO,NO2,O3,PM10,PM2.5	01/57
5	Banning Airport	060650012	NO2,O3,PM10, PM2.5	04/97
6	Big Bear	060718001	PM2.5	02/99
7	Closet World (Quemetco)	060371404	Pb	10/08
8	Compton	060371302	CO,NO2,O3,Pb,PM2.5	01/04
9	Costa Mesa	060591003	CO,NO2,SO2,O3	11/89
10	Central San Bernardino Mountains	060710005	O3,PM10	10/73
11	Fontana	060712002	CO,NO2,SO2,O3,PM10,PM2.5,SO4	08/81
12	Glendora	060370016	CO,NO2,O3,PM2.5,PM10	08/80
13	Indio	060652002	O3,PM10,PM2.5	01/83
14	La Habra	060595001	CO,NO2,O3	08/60
15	Lake Elsinore	060659001	CO,NO2,O3,PM2.5,PM10	06/87
16	LAX Hastings	060375005	CO,NO2,O3,PM10,Pb,SO4	04/04
17	Long Beach (Hudson)	060374006	CO, NO2,SO2,O3,PM10	01/10
18	Long Beach Route 710 Near Road	060374008	NO2, PM2.5	01/15
19	Long Beach (North)	060374002	PM2.5	10/62
20	Long Beach (South)	060374004	PM10,Pb,PM2.5,SO4	06/03
21	Los Angeles (Main St.)	060371103	CO,NO2,SO2,O3,PM10,Pb,PM2.5,SO4	09/79
22	Mecca (Saul Martinez)	060652005	PM10	01/11
23	Mira Loma (Van Buren)	060658005	CO,NO2,O3,PM10,PM2.5	11/05
24	Mission Viejo	060592022	CO,O3,PM10,PM2.5	06/99
25	Norco	060650003	PM10	12/80
26	Ontario Etiwanda Near Road	060710026	CO, NO2	06/14
27	Ontario Route 60 Near Road	060710027	NO2, PM2.5	01/15
28	Palm Springs	060655001	CO,NO2,O3,PM10,PM2.5	04/71

**TABLE 1. (cont) List of Monitoring Sites**

	Location	AQS No.	Pollutants Monitored	Start Date
29	Pasadena	060372005	CO, NO2, O3, PM2.5	04/82
30	Perris	060656001	O3, PM10	05/73
31	Pico Rivera #2	060371602	CO, NO2, O3, Pb, PM2.5, SO4, PM10	09/05
32	Pomona	060371701	CO, NO2, O3	06/65
33	Redlands	060714003	O3, PM10	09/86
34	Rehrig (Exide)	060371405	Pb	11/07
35	Reseda	060371201	CO, NO2, O3, PM2.5	03/65
36	Rubidoux	060658001	CO, NO2, SO2, O3, PM10, Pb, PM2.5, SO4	09/72
37	San Bernardino	060719004	CO, NO2, O3, PM10, Pb, PM2.5	05/86
38	Santa Clarita	060376012	CO, NO2, O3, PM10, PM2.5	05/01
39	SA Recycling	060711407	Pb	06/12
40	Temecula	060650016	O3, PM2.5	06/10
41	Uddelholm (Trojan Battery)	060371403	Pb	11/92
42	Upland	060711004	CO, NO2, O3, Pb, PM2.5, PM10, SO4	03/73
43	West Los Angeles	060370113	CO, NO2, O3	05/84

**TABLE 2. FRM Criteria Pollutant Spatial Scales and Site Type**

SPATIAL SCALE

MI – Microscale

MS – Middle Scale

NS – Neighborhood Scale

US – Urban Scale

SITE TYPE

HC – Highest Concentration

PE – Population Exposure

IM – Source Oriented (Impact)

BK – General Background

	Location	CO	NO2	SO2	O3	Manual PM10	Manual PM2.5	Pb
1	Anaheim	NS/PE	US/PE		NS/PE	NS/PE	NS/PE	
2	Anaheim Route 5 Near Road	MI/HC	MI/HC					
3	ATSF (Exide)							MI/IM
4	Azusa	NS/PE	US/PE		US/HC	NS/PE	NS/PE	
5	Banning Airport		NS/PE		NS/PE	NS/PE		
6	Big Bear						NS/PE	
7	Closet World (Quemetco)							MI/IM
8	Compton	MS/HC	MS/PE		NS/PE		NS/PE	NS/PE
9	Costa Mesa	NS/PE	NS/PE	NS/PE	NS/PE			
10	Crestline				NS/HC	NS/PE		
11	Fontana	NS/PE	US/PE	NS/PE	US/PE	NS/HC/PE	NS/PE	
12	Glendora	NS/PE	NS/PE		NS/HC			
13	Indio				NS/PE	NS/HC	NS/PE	
14	La Habra	NS/PE	US/PE		NS/PE			
15	Lake Elsinore	NS/PE	NS/PE		NS/PE			
16	LAX Hastings	MS/PE/BK	MS/PE/BK	NS/PE/BK	NS/PE/BK	NS/PE/BK		NS/PE/BK
17	Long Beach (Hudson)	NS/HC	NS/PE	NS/HC	NS/PE	NS/HC		
18	Long Beach (North)						NS/HC	
19	Long Beach Route 710 Near Road		MI/HC				MI/HC	
20	Los Angeles (Main St.)	NS/PE	NS/HC	NS/PE	NS/PE	NS/PE	NS/HC	NS/PE
21	Mecca (Saul Martinez)					NS/PE		
22	Mira Loma (Van Buren)	NS/PE	NS/PE		NS/PE	NS/HC	NS/HC	
23	Mission Viejo	NS/PE			NS/PE	NS/PE	NS/PE	
24	Norco					NS/PE		
25	Ontario Etiwanda Near Road	MI/HC	MI/HC					
26	Ontario Route 60 Near Road		MI/HC				MI/HC	
27	Palm Springs	NS/PE	NS/PE		NS/PE	NS/PE	NS/PE	
28	Pasadena	MS/PE	MS/HC		NS/PE		NS/PE	
29	Perris				NS/PE	NS/PE		
30	Pico Rivera #2	NS/PE	NS/HC		NS/PE		NS/PE	NS/PE
31	Pomona	MI/PE	MS/PE		MS/PE			
32	Redlands				NS/PE/HC	NS/PE		
33	Rehrig (Exide)							MI/IM
34	Reseda	NS/PE	US/PE		US/PE		NS/PE	
35	Rubidoux	NS/PE	US/PE	NS/PE	US/HC	NS/HC	NS/HC	NS/PE
36	San Bernardino	MS/PE	US/PE		NS/HC	NS/HC	NS/PE	NS/PE
37	Santa Clarita	NS/PE	NS/PE		US/HC	NS/PE		
38	South Long Beach					NS/HC	NS/HC	NS/HC
39	SA Recycling							HC/IM
40	Temecula				NS/HC			
41	Uddelholm (Trojan Battery)							MI/IM
42	Upland	NS/PE	NS/PE		NS/PE			
43	West Los Angeles	NS/PE	MS/HC		NS/PE			

**TABLE 3. FRM Criteria Pollutant Monitoring Purposes**

MONITORING PURPOSE

BK – Background	RC – Representative Concentration
HC – High Concentration	RM – Real-Time Reporting/Modeling
TP – Pollutant Transport	TR – Trend Analysis
EX – Population Exposure	CP – Site Comparisons
SO – Source Impact	CO - Collocated

	Location	CO	NO2	SO2	O3	Manual PM10	Manual PM2.5	Pb
1	Anaheim	TR	TR/RC		TR	TR/RC	TR/EX	
2	Anaheim Route 5 Near Road	SO/HC	SO/HC					
3	ATSF (Exide)							SO
4	Azusa	TR	TR/RC		TR	TR	TR/EX	
5	Banning Airport		TP/RC		TP	TP		
6	Big Bear						EX/SO/TP	
7	Closet World (Quemetco)							SO
8	Compton	TR/HC	TR/RC		TR/RC		EX/RC	EX
9	Costa Mesa	RC	TR/RC	TR	RC			
10	Crestline				HC	TP/RC		
11	Fontana	RC	TP/RC	TR	RC	HC	EX/TP	
12	Glendora	RC	TR/RC		HC			
13	Indio				TP	HC/CO	TP/EX	
14	La Habra	RC	TR/RC		RC			
15	Lake Elsinore	TP/RC	TP/RC		TP/RC			
16	LAX Hastings	BK	BK	BK	BK	BK		BK
17	Long Beach (Hudson)	TR	TR/RC	TR/HC	TR	TR/RC/HC		
18	Long Beach (North)						EX/HC	
19	Long Beach Route 710 Near Road		SO/HC				SO/HC	
20	Los Angeles (Main St.)	SO/RC	SO/HC	TR	TR/RC	TR/RC/CO	EX/HC/CO	EX/CO
21	Mecca (Saul Martinez)					EX/RC		
22	Mira Loma (Van Buren)	TR/RC	TR/RC		TR/HC	HC	EX/HC/CO	
23	Mission Viejo	RC			TR/RC	TR/RC	EX/RC	
24	Norco					TR/RC		
25	Ontario Etiwanda Near Road	SO/HC	SO/HC					
26	Ontario Route 60 Near Road		SO/HC				SO/HC	
27	Palm Springs	TP/RC	TP/RC		TP	TP/HC	EX/TP	
28	Pasadena	TR/RC	TR/HC		TR/RC		EX/RC	
29	Perris				TP	TR		
30	Pico Rivera #2	RC	HC		EX		EX/RC	EX
31	Pomona	RC	RC		EX			
32	Redlands				TP/RC	TP/RC		
33	Rehrig (Exide)							SO/CO
34	Reseda	RC	TR/RC		EX		EX/RC	
35	Rubidoux	TR/RC	TR/RC	TR	TR/HC	TR/HC/CO	EX/TR/HC/CO	EX
36	San Bernardino	TR/RC	TP/RC		TR/HC	TR/HC	EX/TR	EX
37	Santa Clarita	RC	TP/RC		TP/HC	RC	EX/RC	
38	South Long Beach					HC	EX/SO	EX
39	SA RECYCLING							SO/HC
40	Uddelholm (Trojan Battery)							SO
41	Temecula				TR/HC			
42	Upland	RC	TR/RC		TR/RC			
43	West Los Angeles	RC	TR/HC		RC			



**TABLE 4. Continuous PM<sub>10</sub>/PM<sub>2.5</sub> Monitoring Purpose, Site Type and Spatial Scales**

<u>SITE TYPE</u>	<u>SPATIAL SCALE</u>	<u>INSTRUMENT TYPE</u>
HC – High Concentration	MI – Microscale	TEOM
PE – Population Exposure	NS – Neighborhood Scale	BAM (NON-FEM)
BK - Background		BAM (FEM)

MONITORING PURPOSE

SO – Source Impact	RM – Real-Time Reporting/Modeling
TP – Pollutant Transport	SPM – Special Purpose Monitoring
TR – Trend Analysis	CO - Collocated

Location	Continuous PM <sub>10</sub>				Continuous PM <sub>2.5</sub>				PM <sub>10</sub> – 2.5
	Type	Purpose	Site Type	Scale	Type	Purpose	Site Type	Scale	Operational
Anaheim	BAM/FEM	RM/TR	PE	NS	BAM/FEM	RM/TR	PE	NS	
Banning Airport					BAM/NON-FEM	RM	PE	NS	
Crestline					BAM/NON-FEM	RM	PE	NS	
Glendora	BAM/FEM	RM	PE	NS	BAM/NON-FEM	RM	PE	NS	
Indio	TEOM/FEM	RM	HC	NS					
Lake Elsinore	TEOM/FEM	RM	PE	NS	BAM/NON-FEM	RM	PE	NS	
Long Beach Route 710 Near Road					BAM/FEM	RM/SO/SPM			
Los Angeles (Main St.)	BAM/FEM	RM/TR	PE	NS	BAM/FEM	RM	HC	NS	Yes
Mecca (Saul Martinez)	TEOM/FEM	RM/CO	PE	NS					
Mira Loma (Van Buren)	BAM/FEM	RM	HC	NS	BAM/FEM	RM	HC	NS	
Ontario Route 60 Near Road					BAM/FEM	RM/SO/SPM			
Palm Springs	TEOM/FEM	RM/TP	HC	NS					
Reseda					BAM/NON-FEM	RM	PE	NS	
Rubidoux	TEOM/FEM	RM/TR	HC	NS	BAM/FEM & BAM/FEM	RM/TR/CO	HC	NS	Yes
San Bernardino	TEOM/FEM	RM/TR	HC	NS					
Santa Clarita					BAM/NON-FEM	RM	PE	NS	
South Long Beach					BAM/FEM	RM/SO	PE	NS	
Temecula					BAM/NON-FEM	RM	PE	NS	
Upland	BAM/FEM	RM	PE	NS	BAM/NON-FEM	RM	PE	NS	

A brief description of the criteria pollutant and program monitoring networks are provided below:

### **OZONE (O3)**

The SCAQMD operates 29 sites where O3 measurements are made as part of the Air Monitoring Network. O3 sites are spread throughout the SCAB with highest concentrations measured inland. Figure 1 in Appendix A shows the spatial distribution of these sites and Table 9 shows the minimum monitoring requirements.

### **PM10**

Size-selective inlet manual high volume samplers are operated at 20 sites to meet the requirements for PM10 Federal Reference Method (FRM) sampling. The PM10 monitoring network contains five sites within 25% of the Federal NAAQS as shown in the 2016 Air Quality Data Table (<http://www.aqmd.gov/home/library/air-quality-data-studies/historical-data-by-year>), Figure 9. The Indio, Mira Loma and Rubidoux sites are designated PM10 collocated and shown in Tables 5, 13 and 21. All PM10 FRM monitors operate on a one day in six day schedule, with the exception of Indio, Mira Loma and Rubidoux which operate on one day in three day schedule. The Azusa and Mecca sites are shown as expected maximum value sites by MSA in Tables 13. Consequently, as expected maximum concentration sites, Azusa and Mecca meet the minimum sampling schedule requirement shown in 40 CFR §58.12. The remaining sites meet or exceed the minimum 6 day sample schedule requirement as shown in Table 5.

PM10 continuous analyzers are operated at 11 sampling sites. These real-time devices are capable of making hourly particulate concentration measurements for real-time reporting. Table 4 describes the monitor type, site type, monitoring purpose, and spatial scale for continuous particulate analyzers. Figure 2 in Appendix A shows the spatial distribution of the sampling sites and Table 18 shows the minimum monitoring requirements. Real-time monitors, for the most part, are clustered in the high concentration areas, with three located in the Coachella Valley desert area where wind-blown crustal material has caused exceedances of the twenty-four hour standard during exceptional events. In downwind areas of the SCAB, a large fraction of particulate is formed in the atmosphere; PM10 typically reaches maximum levels in the SCAB during late summer through early winter months.

Where both 24 hour PM10 FRM samplers and PM10 FEM continuous analyzers are deployed together, they are sited as collocated for data comparison purposes where possible. FRM PM10 sampler remains the primary analyzer used for attainment purposes and continuous analyzers are designated as audit samplers unless the primary 24 hour FRM PM10 is offline then continuous FEM analyzer data can be substituted.

**TABLE 5. Manual PM<sub>10</sub> FRM Monitoring Stations Assigned Site Numbers**

	Location	Site Code	ARB No.	AQS No.	Start Date	Schedule
1	Anaheim	ANAH	30178	060590007	01/03/99	1-in-6
2	Azusa	AZUS	70060	060370002	01/04/99	1-in-6
3	Banning	BNAP	33164	060650012	04/01/97	1-in-6
4	Central San Bernardino Mountains	CRES	36181	060710005	10/01/73	1-in-6
5	Fontana	FONT	36197	060712002	01/03/99	1-in-6
6A	Indio “A”	INDI	33157	060652002	01/30/99	1-in-6
6B	Indio “B”	INDI	33157	060652002	01/30/99	1-in-3
6C	Indio “C” <sup>1</sup>	INDI	33157	060652002	01/30/99	1-in-6
7	Los Angeles (Hastings)	LAXH	70111	060375005	04/01/04	1-in-6
8	Long Beach (Hudson)	HDSN	70033	060374006	01/01/10	1-in-6
9	Mecca (Saul Martinez)	SLMZ	33033	060652005	01/01/11	1-in-6
10	Los Angeles (Main St.)	CELA	70087	060371103	01/03/99	1-in-6
11A	Mira Loma (Van Buren) “A”	MRLM	33165	060658005	11/09/05	1-in-6
11B	Mira Loma (Van Buren) “B”	MRLM	33165	060658005	03/08/12	1-in-3
11C	Mira Loma (Van Buren) “C” <sup>1</sup>	MRLM	33165	060658005	03/08/12	1-in-6
12	Mission Viejo	MSVJ	30002	060592022	06/01/99	1-in-6
13	Norco	NORC	33155	060650003	12/01/80	1-in-6
14	Palm Springs	PLSP	33137	060655001	12/26/99	1-in-6
15	Perris	PERI	33149	060656001	05/01/73	1-in-6
16	Redlands	RDLT	36204	060714003	09/01/86	1-in-6
17A	Rubidoux “A”	RIVR	33144	060658001	01/03/99	1-in-3
17B	Rubidoux “B” <sup>1</sup>	RIVR	33144	060658001	01/03/99	1-in-6
18	San Bernardino	SNBO	36203	060719004	01/03/99	1-in-6
19	Santa Clarita	SCLR	70090	060376012	05/01/01	1-in-6
20	South Long Beach	SLBH	70110	060374004	06/01/03	1-in-6

<sup>1</sup> – Run as collocated on 1-in-6 run day.

### PM<sub>10</sub>-2.5

PM<sub>10</sub>-2.5 (PM Coarse) were required at NCore sites until the revision to 40 CFR Part 58 on March 28, 2016. PM Coarse is derived from the continuous BAM PM<sub>10</sub> and PM<sub>2.5</sub> particulate monitors. SCAQMD continues to measure this optional parameter utilizing the continuous BAM monitors at the Los Angeles (Main) and Rubidoux air monitoring sites as shown in Table 4. The Purpose, Site Type and Scale are similar to the continuous PM<sub>10</sub> and PM<sub>2.5</sub> instruments from which data is calculated.

### NITROGEN DIOXIDE (NO<sub>2</sub>)

The NO<sub>2</sub> network consists of 23 area wide, and 4 near road sites. These sites are located in areas of highest expected NO<sub>2</sub> concentrations.

The Near Road monitoring network consists of four sites which were implemented in January of 2014 and 2015. These sites were selected based upon criteria based upon the U.S.

EPA Near Road TAD, which were approved by U.S. EPA and were presented publically in a Near Road Workshop. In addition, U.S. EPA representatives visited the sites during the selection process and approved monitoring locations. The Near Road sites are adjacent to the most heavily traveled roadways identified in the basin where peak hourly NO<sub>2</sub> concentrations are expected to occur within the near-road environment. Site selection took into consideration satisfying siting criteria, site logistics (e.g., gaining access to property and safety), and population exposure for those who live, work, play, go to school, or commute within the near-roadway environment. The spatial distribution of NO<sub>2</sub> monitors is shown in Figure 3 in Appendix A and minimum monitoring requirements are shown in Table 14.

Additionally, the Regional Administrator identified 40 NO<sub>2</sub> sites nationwide with a primary focus on siting these monitors in locations to protect susceptible and vulnerable populations. The Regional Administrator in collaboration with SCAQMD identified the Los Angeles (Main), Long Beach (North) and San Bernardino sites from the existing area-wide monitoring network to meet this requirement (58.10[a][5]). On September 30, 2013, the continuous monitors including NO<sub>2</sub> were discontinued at Long Beach (North) due to termination of the lease by owner. SCAQMD, in consultation with U.S. EPA, designated Compton as a RA 40 site. SCAQMD is in the process of identifying a replacement monitoring location for Long Beach (North) in collaboration with Long Beach Department of Public Health and also considering potential consolidation with nearby sites. Review of 1992 through 2016 NO<sub>2</sub> data shows the State and Federal standards for NO<sub>2</sub> were not violated.

### **CARBON MONOXIDE (CO)**

Area wide CO monitors measure concentrations at 23 ambient locations and 2 near road locations within the SCAQMD ambient air monitoring network. Figure 4 in Appendix A shows the spatial distribution of these sites. CO emissions, primarily from motor vehicles, show a pattern consistent with major freeway arteries. A review of data for 2016 shows State and Federal standards for CO were not exceeded.

### **SULFUR DIOXIDE (SO<sub>2</sub>)**

SO<sub>2</sub> monitors are located at 6 sites. Figure 5 in Appendix A shows the spatial distribution of the sites. Most SO<sub>2</sub> emissions come from Federal transportation sources such as marine vessels. The monitors are clustered mostly in the areas where these sources are located.

On June 22, 2010 EPA strengthened the SO<sub>2</sub> National Ambient Air Quality Standard (NAAQS). Network design requirements included new minimum requirements be determined by the Population Weighted Emissions Index (PWEI).

The PWEI shall be calculated by States for each CBSA they contain or share with another State or States for use in the implementation of or adjustment to the SO<sub>2</sub> monitoring network. The PWEI shall be calculated by multiplying the population of each CBSA, using the most current census data or estimates, and the total amount of SO<sub>2</sub> in tons per year emitted within the CBSA area, using an aggregate of the most recent county level emissions data available in the National Emissions Inventory (NEI) for each county in each CBSA. The resulting product shall be

divided by one million, providing a PWEI value, the units of which are million persons-tons per year. For any CBSA with a calculated PWEI value equal to or greater than 1,000,000, a minimum of three SO<sub>2</sub> monitors are required within that CBSA. For any CBSA with a calculated PWEI value equal to or greater than 100,000, but less than 1,000,000, a minimum of two SO<sub>2</sub> monitors are required within that CBSA and for any CBSA with a calculated PWEI value equal to or greater than 5,000, but less than 100,000, a minimum of one SO<sub>2</sub> monitor is required within that CBSA.

**TABLE 6. PWEI Calculation and Minimum Required SO<sub>2</sub>**

CBSA	Population Estimate <sup>1</sup>	NEI SO <sub>2</sub> Emmissions <sup>2</sup>	PWEI Value	Minimum Required SO <sub>2</sub>
31080	13,340,068	6,049.52	80,701	1
40140	4,489,159	1,289.67	5,790	1

<sup>1</sup> 2015 Census estimate available at <https://www.census.gov/data/datasets/2015/demo/popest/total-metro-and-micro-statistical-areas.html>

<sup>2</sup> 2014 NEI Data most recent available at <https://www.epa.gov/air-emissions-inventories/national-emissions-inventory>

SCAQMD exceeds the minimum requirement for SO<sub>2</sub> monitors; the Federal standard has not been exceeded for nearly 35 years.

## **PARTICULATE LEAD**

Total Suspected Particulate (TSP) Pb measurements are collected at 13 sites as part of the particulate network; 5 of the sites are Source Impact for Pb, and the remaining 8 sites measure ambient Pb. The Los Angeles, and Compton sites are designated as collocated for the area wide Pb monitoring network; minimum monitoring and collocation requirements are shown in Tables 17, 19 and 21. The spatial distribution of these sites is shown in Figure 6 in Appendix A.

On November 12, 2008, the EPA issued final revisions to the NAAQS for Pb. Network design requirements included monitoring for sources of Pb (source oriented monitoring) and urban Pb monitoring (non-source oriented). To meet this requirement, a source oriented site was established on January 1, 2010 at the Van Nuys Airport and monitoring continues at the sites surrounding the Exide (Vernon), Quemetco (Industry), and the Trojan Battery facilities. Existing urban Pb monitoring conducted at Compton, LAX Hastings, Los Angeles (Main), Pico Rivera, SA Recycling, Rubidoux, San Bernardino, and South Long Beach. Upland was discontinued March, 2017 at property management request. SCAQMD exceeds the minimum monitoring requirements for Pb.

The final rule for Pb went into effect on January 26, 2011. In the final rule the Van Nuys Airport was no longer included on the list of airports where Pb monitoring was required, and emissions inventory showed Pb emissions less than the minimum monitoring requirement of 1.0 ton per year. Data review from the Van Nuys Airport Pb site showed no exceedances of the three month rolling average during the monitoring period. In consultation EPA the site was discontinued on June 4, 2013 based upon conditions cited in 40 CFR 58 Appendix D 4.5.

The most recent NEI data (<https://www.epa.gov/air-emissions-inventories/national-emissions-inventory>) as of 3/16/2017 shows no airports exceed the 1.0 tpy threshold requiring a monitoring plan:

As of the end of 2016, SCAQMD is not in violation of the Pb NAAQS.

### **Photochemical Assessment Monitoring Stations**

The Photochemical Assessment Monitoring Stations (PAMS) network was initiated in June 1994 at Pico Rivera and Upland. During 1995 sites were established at Banning and Azusa to determine speciated hydrocarbon O<sub>3</sub> precursor compounds in ambient air. PAMS monitoring at Hawthorne commenced in June 1997 and the Burbank station became a PAMS site in July 1997. In May 2001, the Santa Clarita location was established as a PAMS site. In April 2004, the Hawthorne site was replaced by LAX Hastings, in August 2005, the Pico Rivera station moved to a new location one half mile south of the previous site, also due to the end of the property lease.

SCAQMD utilizes PAMS data for trends analysis, trajectory modeling, and source emissions inventory reconciliation. SCAQMD has conducted an assessment of its PAMS program. The assessment indicated that although the existing program provides a robust data set, the measurement program can be modernized to compliment current and future U.S. EPA program requirements, strengthening the connection between the PAMS measurements objectives for better comprehension of ozone in the South Coast Basin. Thus, SCAQMD will focus its resources on optimizing the program, evaluating technologies, and shifting resources to prepare for the revised program. The general concept will be to conduct intensive one-year large scale Specialized PAMS (SPAMS) measurements every several years and in between SPAMS, conduct reduced core PAMS program during non-intensive years.

During non-intensive years the goal is to track annual statistics, trends (yearly, seasonally, monthly, weekly, daily, hourly), spatial distribution, comparison to other federal programs, and comparison data for special projects. Non intensive monitoring is proposed at four sites:

- Los Angeles (Main street): Proposed required by U.S. EPA, Station Leveraging, Current Type 2 site
- Azusa: Current Type 2 site, Trend site
- Rubidoux: Proposed required by U.S. EPA, Station leveraging, Current Type 3 site.
- Long Beach: Port/ Refineries activity and emissions

During the periodic intensive one year SPAMS intensive period, the goal is to conduct measurements with better spatial resolution (both vertical and horizontal), establish trend data (yearly, seasonally, monthly, weekly, daily, hourly) – develop control strategies, emissions inventory evaluations, local scale studies, full scale photochemical transport modeling, VOC/NO<sub>x</sub> profiling, and background characterization.

The 2017 PAMS network monitoring objectives and requirements are summarized in Table 7, Table 20 and Figure 7 in Appendix A which shows the distribution of the PAMS network. SCAQMD will not conduct the intensive season sampling schedule for PAMS sites in 2017, but will continue the current non intensive schedule for all current PAMS sites. During this non-intensive season 24-hour VOC canister samples are run every 6<sup>th</sup> day and 24-hour carbonyl samples are run every 6<sup>th</sup> day. Rubidoux is a collocated site for VOC canister sampling and Pico Rivera is a collocated site for VOC canister and carbonyl sampling. SCAQMD will be evaluating implementation options for the revised PAMS/ SPAMS programs by reviewing the U.S. EPA PAMS GC assessment, upgrading its air monitoring network infrastructure, preparing mobile platforms, and evaluating instruments and methods.

During 2011, EPA along with local and state agencies evaluated the PAMS network and recommended changes to regulations published on October 1, 2015 as part of the Ozone NAAQS review. Changes to requirements include collocating PAMS sites with existing NCore sites, development of enhanced monitoring plans (EMPs) for non-attainment areas, hourly VOC measurements, and true NO<sub>2</sub> measurements. PAMS monitoring at NCore sites is required by June 1, 2019 and EMPs are required by October 1, 2019. SCAQMD intends to be an early adopter of required changes and implement the changes including hourly VOC measurements and true NO<sub>2</sub> measurements in advance of the 2019 deadline.

**TABLE 7. PAMS Network**

Site Type	Date Established as PAMS	Site / AQS ID#	January 1 to December 31		Additional Requirements
			VOC	Carbonyl	
2	06/01/1995	Azusa	1 x 24 hr sample every 6 <sup>th</sup> day	No Sampling	No/NOx required
2	06/01/2009	Los Angeles (Main)	1 x 24 hr sample every 6 <sup>th</sup> day	1 x 24 hr sample every 6 <sup>th</sup> day	Trace level CO required at one type 2 site.
3	06/09/2009	Rubidoux	1 x 24 hr sample every 6 <sup>th</sup> day	No Sampling	NOy required

**MONITORING OBJECTIVES:**

- 1 – Upwind and background characterization site (type 1 or 3)
- 2 – Maximum O3 precursor emissions impact site or above 8-hr zone
- 3 – Maximum O3 concentration site
- 4 – Extreme downwind monitoring site

**MONITORING REQUIREMENTS:**

- One type 1 or type 3 site required per area
- One type 2 site required per area
- No type 4 required

**REDUCED REQUIREMENTS:**

- Speciated VOC only required at type 2 and one other
- Carbonyl only required in areas classified as serious
- NO/NOx required only at type 2
- NOy required at one site per PAMS area (type 1 or 3)



## **PM2.5**

A network of 17 area wide FRM samplers was first implemented in January 1999. On December 26, 1999, a second Coachella Valley PM2.5 sampling site was established in Palm Springs. On June 20, 2003, PM2.5 sampling began at the South Long Beach site. The Mira Loma site was added during October, 2005 and the Route 710 Long Beach and Route 60 Ontario near road sites were added during January, 2015. The current number of sites totals 19 area wide monitors, as depicted in Figure 8, Appendix A, and the starting date of each sampler is listed in Table 8.

Collocated sampling sites include Rubidoux, Central Los Angeles, and Mira Loma (Van Buren). Of the collocated sites, all three are located at sites with annual mean particulate concentrations among the highest 25 percent of the annual mean concentrations for all sites in the network as required in 40 CFR § 58 Appendix A 3.3.1. Supporting data is shown in Figure 9, 2016 Air Quality Data Table. The latest data can be found at:

<http://www.aqmd.gov/home/library/air-quality-data-studies/historical-data-by-year>.

Manual, 24-hour PM2.5 monitors are sited as neighborhood scale and population exposure representing community wide air quality with multiple sites are listed as population exposure. Because all of SCAQMD are in non-attainment for PM2.5, most of the sites are in areas of with PM2.5 levels higher than the NAAQS. Therefore multiple sites are listed as population exposure and high concentration. If a PM2.5 network modification were to be implemented for a site that was in exceedance of the PM2.5 NAAQS levels, SCAQMD would notify U.S. EPA Region IX via written communication. Public notice of network modifications occurs as part of the annual network plan process which is stated in the annual network plan as required in 40 CFR § 58.10(c). All sites in the Network using FRM samplers are suitable for comparison against the annual PM2.5 NAAQS.

Daily design value sites are shown in Table 17a, as the Long Beach 710 Near Road and Ontario Route 60 Near Road sites. A replacement site is currently being sought for Burbank due to termination of lease and the Ontario Route 60 Near Road site satisfies the minimum daily monitoring requirement. Monitors exceed the minimum NCore 1 in 3 requirements at the Rubidoux and Los Angeles (Main) sites. The remaining sites meet or exceed the 1 in 3 schedule with the exception of Big Bear which was approved at the inception of the PM2.5 program as a 1 in 6 site. The Federal minimum monitoring requirements for PM2.5 are being met and/or exceeded by the SCAQMD PM2.5 monitoring network.

Continuous PM2.5 Met One BAMs were first deployed in fiscal year 2001-02. Fifteen BAM monitors are now operating in the SCAB, FEM BAM are located at: Anaheim, Los Angeles (Main), Mira Loma (Van Buren), Rubidoux, Ontario 60 Near Road, Route 710 Near Road, and South Long Beach sites. NON-FEM BAM samplers are located at Reseda, Santa Clarita, Crestline, Upland, Banning, Lake Elsinore, Temecula, and Glendora. In 2011, all FEM BAMs have been reclassified from special purpose monitors to SLAMS under 40 CFR § 58.20. During 2014, the Burbank and North Long Beach sites were discontinued due to termination of leases.

During 2013-2016, SCAQMD has conducted PM<sub>2.5</sub> Continuous Monitor Comparability Assessments in accordance with the PM NAAQS rule published on January 15th, 2013 (78 FR 3086). Specific to the provisions detailed in §58.10 (b)(13) and §58.11 (e), the assessment results indicate that all of the SCAQMD PM<sub>2.5</sub> Continuous Monitors do not meet the criteria to be compared against the NAAQS. Subsequently, SCAQMD requested waivers to exclude PM<sub>2.5</sub> continuous monitor data from NAAQS comparison which were approved by EPA for 2013-2015. Meanwhile, SCAQMD is conducting comparison studies of newer technology to determine their ability to meet the criteria to be compared against the NAAQS. During 2015, Thermo 5014i BAM monitors were installed at the Interstate 710 and Route 60 near road sites for evaluation. Because 2016 was the first complete calendar year for PM<sub>2.5</sub> collection, the comparison data included appendix C is listed as SPM and is a shorter duration than the other sites. SCAQMD is requesting a waiver for 2016 PM<sub>2.5</sub> continuous monitors as shown in appendix C of this report.

Coarse particulate matter measurements (PM<sub>10-2.5</sub>) were required at NCore sites until the revision to 40 CFR Part 58 on March 28, 2016. SCAQMD continues to measure this optional parameter by utilizing the continuous BAM monitors at the Los Angeles (Main) and Rubidoux air monitoring sites. These monitors are shown in Table 4.

Where both 24 hour FRM PM<sub>2.5</sub> samplers and FEM PM<sub>2.5</sub> continuous analyzers are deployed together, they are sited as colocated for data comparison purposes if the FEM analyzer meets the acceptance criteria under 78 FR 3086.

FRM PM<sub>2.5</sub> sampler remains the primary analyzer used for attainment purposes and continuous analyzers are designated as audit samplers unless the primary 24 hour FRM PM<sub>2.5</sub> is offline then continuous FEM analyzer data can be substituted if the FEM analyzer meets the acceptance criteria under 78 FR 3086.

PM<sub>2.5</sub> speciation sampling is also a part of the SCAQMD PM<sub>2.5</sub> program. Collocated CSN Met One SASS PM<sub>2.5</sub> and one SCAQMD Met One SASS PM<sub>2.5</sub> speciation samplers were deployed in March 2001 at Rubidoux. An additional CSN Met One SASS and colocated SCAQMD SASS samplers were deployed at Central Los Angeles in 2002. In 2003, SCAQMD SASS PM<sub>2.5</sub> speciation samplers were installed at Fontana and Anaheim air monitoring sites. Analysis of the filters from the SCAQMD ambient network SASS samplers are being conducted at SCAQMD's laboratory. The CSN SASS sample filters are shipped to a U.S. EPA contract laboratory for analysis. This approach has the concurrence of CARB and U.S. EPA, Region IX.

**TABLE 8. Manual PM<sub>2.5</sub> FRM Monitoring Stations Assigned Site Numbers**

Location	Site Code	ARB No.	AQS No.	Start Date	Schedule
Anaheim	ANAH	30178	060590007	01/03/99	Daily
Azusa	AZUS	70060	060370002	01/04/99	1-in-3
Big Bear	BGBR	36001	060718001	02/08/99	1-in-6
Compton	COMP	70112	060371302	11/08	1-in-3
Fontana	FONT	36197	060712002	01/03/99	1-in-3
Indio	INDI	33157	060652002	01/30/99	1-in-3
Long Beach (North) <sup>1</sup>	LGBH	70072	060374002	01/03/99	Daily
Long Beach Route 710 Near Road	W710	70032	060374008	01/01/15	Daily
Los Angeles “A” (Main St.)	CELA	70087	060371103	01/03/99	Daily
Los Angeles “B” (Main St.)	CELA	70087	060371103	01/06/99	1-in-6
Mira Loma (Van Buren) “A”	MRLM	33165	060658005	11/09/05	Daily
Mira Loma (Van Buren) “B”	MRLM	33165	060658005	03/08/12	1-in-6
Mission Viejo	MSVJ	30002	060592022	06/15/99	1-in-3
Ontario Route 60 Near Road	60NR	36036	060710027	01/01/15	Daily
Palm Springs	PLSP	33137	060655001	12/26/99	1-in-3
Pasadena	PASA	70088	060372005	03/04/99	1-in-3
Pico Rivera #2	PICO	70185	060371602	09/12/05	1-in-3
Reseda	RESE	70074	060371201	01/24/99	1-in-3
Rubidoux “A”	RIVR	33144	060658001	01/03/99	Daily
Rubidoux “B”	RIVR	33144	060658001	01/03/99	1-in-6
San Bernardino	SNBO	36203	060719004	01/03/99	1-in-3
South Long Beach	SLGB	70110	060374004	06/20/03	Daily

<sup>1</sup> Although the N. Long Beach station has been closed, FRM PM<sub>2.5</sub> measurements have been allowed to be continued at the location until a suitable replacement site can be implemented.

### National Air Toxics Trends Station (NATTS)

The NATTS program was developed to fulfill the need for long-term Hazardous Air Pollutant (HAP) monitoring data of consistent quality nationwide. SCAQMD has conducted several air toxics measurement campaigns in the past, which demonstrated the variety and spatial distribution of air toxics sources across SCAB. A single air toxics measurement site cannot reflect the levels and trends of air toxics throughout the SCAB. For this reason, two NATTS sites are used to characterize the SCAB’s air toxics levels. The first site is a central urban core site in Los Angeles that reflects concentrations and trends due primarily to urban mobile source emissions. A second, more rural, inland site at Rubidoux captures the transport of pollutants from a variety of upwind mobile and industrial sources in the most populated areas of the air basin. NATTS monitoring began in February 2007 and continues at the Los Angeles (Main) and Rubidoux air monitoring sites. During April 2013, a system audit was conducted by the EPA, which assessed the SCAQMD NATTS program. The audit found no major issues with the operation of the network.

### NCore

NCore monitoring rules required that SCAQMD make NCore sites operational by January 1<sup>st</sup>, 2011. To meet this goal, SCAQMD installed trace level analyzers for CO, NOY and SO<sub>2</sub> at the Rubidoux and Central Los Angeles sites. Continuous PM<sub>10</sub> and PM<sub>2.5</sub> BAM

are utilized for PM10-PM2.5 measurements at both sites. Both the Los Angeles and Rubidoux sites are NATTS and PAMS monitoring locations.

## **Special Programs**

Special monitoring programs are conducted for rule compliance purposes, to characterize the levels of toxic air contaminants and other criteria pollutants in sub-regional areas or communities in the SCAB, or to support modeling and planning efforts. The following is a list of special monitoring programs that were active during the past year. Note that this is being provided for informational purposes only.

### **MATES V**

The SCAB is a highly urbanized area home to about seventeen million people who own and operate about eleven million motor vehicles, and contains some of the highest concentrations of industrial and commercial operations in the country. In 1986, SCAQMD conducted the first MATES study to determine the SCAB-wide risks associated with major airborne carcinogens. At the time, the state of technology was such that only ten known air toxic compounds could be analyzed. In 1998, a second MATES study (MATES II) was conducted; MATES II included a monitoring program of 40 known air toxic compounds, an updated emissions inventory of toxic air contaminants, and a modeling effort to characterize health risks from hazardous air pollutants. In April 2004, the SCAQMD conducted the third MATES study (MATES III) to assess the ambient levels of airborne compounds linked to adverse health effects in humans. And in June, 2012 SCAQMD began the MATES IV study which concluded in June, 2013. A final report was released May 1, 2015.

The MATES V is anticipated to begin January 1, 2018 and includes a monitoring program, an updated emissions inventory of toxic air contaminants, and a modeling effort to characterize risk across the Basin with a focus on refineries. Additional shorter-term measurements are being conducted at various locations to assess localized impact of sources of pollution within communities. The focus of these measurements is on assessing exposure of toxics near sources such as refineries within the community.

MATES V will enhance the spatial resolution of previous studies by characterizing the ambient concentration of selected toxic air compounds in communities with varying land-type usage, such as residential, industrial, and commercial, as well as gradients from source areas downwind to receptor areas.

The local scale component to the MATES V study utilizes mobile monitoring platforms deployed for short term measurements of selected compounds near sources such as refineries. Workshops for MATES V will be announced on SCAQMD website as part of the planning process.

### **Aliso Canyon**

On November 10, 2015, SCAQMD field staff supported California Air Resources Board (CARB) monitoring efforts in the collection of samples to assess the identity and levels of pollution related to a large natural gas leak. In addition, on December 4, 2015, the SCAQMD Governing Board approved the purchase of equipment and services to enhance natural gas

monitoring capability at the Aliso Canyon Facility. This equipment is currently used inside the Aliso Canyon facility and in the surrounding communities, including Porter Ranch. The new equipment provided increased accuracy and the flexibility for deployment in mobile and stationary platforms. SCAQMD monitoring activities can be found at:

<http://www.aqmd.gov/home/regulations/compliance/aliso-canyon-update/air-sampling>

### **Fugitive Dust Study**

In support of SCAQMD Rule 403 - Fugitive Dust, SSI PM10 samplers are deployed on an episodic basis upwind and downwind of potential sources as required under Rule 403. Since 2003, periodic sampling has been conducted around gravel quarries and other industries which seem to be producing large volumes of dust.

### **Hexavalent Chrome**

The SCAQMD has an ongoing program to collect ambient hexavalent chromium samples in the vicinity of several chrome plating and cement production facilities located throughout the SCAB. Monitoring continues at Paramount, Newport Beach, Riverside, and other locations throughout the SCAQMD jurisdiction. SCAQMD Monitoring activities can be found at:

<http://www.aqmd.gov/home/regulations/compliance>

### **GERDAU-TAMCO**

GERDAU North America acquired the TAMCO Rancho Cucamonga steel mini mill in October, 2010. In 2012 an environmental audit was conducted at the facility and found discrepancies in reported emissions with respect to SO<sub>x</sub> and NO<sub>x</sub>. Further, it was suspected that Pb emissions can contribute to an exceedance of the NAAQS. SCAQMD conducted inspections of the facility to address issues and continues monitoring for Pb, Cr+6, and other metals at the facility. Monitoring efforts at TAMCO currently measure Pb, Total Metals and Cr+6 on a one in three day schedule.

### **Salton Sea Monitoring**

On Sunday September 9, 2012, a strong thunderstorm over the Salton Sea caused odors to be released and transported to the northwest, across the Coachella Valley and through the Banning Pass into the SCAB. The odors also crossed through the mountain passes west of the Salton Sea and into the Temecula Valley. The following day, SCAQMD received over 235 complaints of sulfur and rotten egg type odors

As the Salton Sea recedes, the potential exists for more of these large-scale odor events to occur. SCAQMD has installed PM10 and H<sub>2</sub>S air monitors at Mecca (Saul Martinez Elementary School) and the Imperial Irrigation District's Torrez-Martinez site, located near the lakeshore, to monitor the type of expected nuisance pollutants which are released from the Salton Sea. The primary objective of this monitoring network is to place monitoring resources at a lakeside location where peak hydrogen sulfide concentrations are expected to occur and in the nearby community. The monitoring sites will provide data that can be used to assess population exposures in case of odor events and for comparison to the state standard

for hydrogen sulfide. The Mecca site has become part of the permanent ambient air monitoring network.

As the Salton Sea is projected to recede, these sites will be further enhanced for monitoring the predicted particulate matter (PM) emissions from the Salton Sea area that may influence the Coachella Valley and South Coast Air Basin PM levels.

#### **AllenCo**

AllenCo is an oil field and gas production facility located in the City of Los Angeles surrounded by residences including low income housing units, F.D. Lanterman High School, and Mount Saint Mary's College. For several years SCAQMD inspectors have responded to numerous odor complaints from the local community and suspects AllenCo to be the source of these odors. In October 2013 the SCAQMD initiated monitoring at sites around the AllenCo facility. At Mt. St Mary's College regularly scheduled VOC samples are collected on the roof of the housing building across the street from AllenCo, there is a remote controlled sampler capable of collecting a VOC grab sample should an odor complaint be called into the SCAQMD odor complaint line. In November 2013 AllenCo temporarily shut down operations to repair issues which it believes were the cause of the previous odor complaints. SCAQMD moved the continuous Non-Methane Hydrocarbon Measurements to support the Aliso Canyon monitoring efforts, but continues to collect VOC samples while AllenCo is shutdown. When AllenCo resumes operations, SCAQMD intends on resuming continuous monitoring briefly to assess air quality.

#### **Duarte**

To better assess expansion of rock and quarry operations and its impact on residents of Duarte, SCAQMD began continuous PM10 monitoring on May 21, 2013. The study assesses levels of PM10 in the City of Duarte.

#### **CPV Sentinel**

To better assess potential emission impacts from the CPV Sentinel power plant to the Desert Hot Springs area, SCAQMD has installed and is now operating an FEM PM2.5 directly downwind of the power plant at a Mission Springs Water District well site. Monitoring began on May 23, 2014 and measures levels of fine particulates (PM2.5) on a continuous basis, providing real-time hourly data (<http://www.aqmd.gov/home/library/air-quality-data-studies/special-monitoring/cpv-sentinel-monitoring>).

#### **City of Paramount Air Monitoring Activities**

In 2013, the South Coast Air Quality Management District (SCAQMD) received a series of metallic odor complaints from local community members in the Paramount neighborhood. In response to these complaints, the SCAQMD staff began conducting an investigation into local sources of emissions, including initiating a local air sampling study. The purpose of these activities was to determine the source of emissions and potential air pollution control strategies. Ambient monitoring of toxic metal emissions began in 2013 and has continued at two sites on Vermont Avenue and California Avenue. Based on the monitoring results, there were two metals of concern: nickel and hexavalent chromium. In 2014 and 2015, SCAQMD worked with Carlton Forge Works to reduce metal particulate emissions from their grinding

operation. Carlton Forge Works implemented a number of voluntary measures that substantially reduced nickel levels. Since these measures did not reduce hexavalent chromium levels, the SCAQMD needed additional data to understand the source of these emissions. In October 2016, as part of its ongoing investigation to identify and address sources of hexavalent chromium that may be impacting the nearby communities, SCAQMD staff deployed several monitors in the mostly industrial areas of the City of Paramount. Initial results showed elevated levels of hexavalent chromium upwind of Carlton Forge Works. The results of monitoring efforts, Town Hall Meetings, air monitoring and public health reports, and other related information can be found at:

<http://www.aqmd.gov/home/regulations/compliance/air-monitoring-activities>

## **Recent or Proposed Modifications to Network**

### **5 Year Network Assessment**

During 2015, an assessment of the monitoring network was conducted as required by EPA every 5 years. A summary of the assessment findings and proposed changes are provided below. There are many purposes and objectives for air quality monitoring, some beyond those described in the assessment. Meeting minimum monitoring requirements is just one factor in determining the value of sites and measurements. Given the challenges of meeting air quality standards in Southern California and the need for information to help in developing control strategies to achieve attainment, the SCAQMD monitoring network will far exceed the minimum requirements. Forecasting and public reporting are also critical in the network design. Furthermore, closing, relocating or creating monitoring sites requires significant resources and often a long period of concurrent monitoring to show comparability. Thus, the proposed suggestions summarized below are under review and in consultation with EPA, must be weighed against many other factors before being implemented.

- Consider a general reduction in the number of sites monitoring for SO<sub>2</sub>, NO<sub>2</sub>, and CO pollutants in the network while still maintaining all monitoring objectives and purposes.
- Reconsider the values of the Glendora, La Habra and Pomona sites.
- Reconsider the value of the Big Bear Lake PM<sub>2.5</sub> site.
- Reconsider the number of PM<sub>2.5</sub> monitors above the minimum monitoring requirements.
- Continue to transition to continuous PM measurements that can eventually replace filter-based measurements.
- Reconsider reducing the particulate collocated sampling schedule from the current 1 in 6 to EPA required 1 in 12.
- Consider consolidating all South Long Beach and North Long Beach measurements to a site that is closer to port activities and will better achieve the original purpose of the two sites.
- Reconsider the value of the Norco particulate sites, and potentially consolidate measurements at nearby sites or at a new site between the two.

### **Crestline**

SCAQMD has been operating the Crestline site since 1973. The deteriorating state of the shelter along with compromises made to the siting criteria due to obstructions has made it a candidate for site improvement. As part of regular air monitoring station maintenance, a new station shelter has

been outfitted to replace the existing trailer. SCAQMD received approval from San Bernardino County Planning, Building and Safety departments for planned construction. During September 2016 a RPF was completed however no contractor was found that could complete the work within budget. Large scale improvements are to be postponed until a suitable contractor can be found or alternative location identified. Meanwhile, SCAQMD is currently evaluating the existing site for representativeness and determining whether the current location or an alternate in a nearby community is most suitable. Any determination will be made in consultation with CARB AND EPA Region IX prior to construction.

#### **West LA**

SCAQMD has been operating the West LA site since 1983. The deteriorating state of the shelter along with compromises made to the siting criteria due to obstructions has made it a candidate for site improvement. As part of regular air monitoring station maintenance, a new station shelter has been outfitted to replace the existing platform. Construction schedule is dependent upon pending lease renewal with Veterans Administration.

#### **Burbank**

SCAQMD has been operating the Burbank site since October, 1961. Due to the termination of the lease by the owner, the site was shut down June, 2014. SCAQMD is working with Los Angeles County Department of Public Health, City of Burbank, LA DWP, and SCE to find a suitable location for monitoring within 2.5 miles of the previous location. SCAQMD is in consultation with U.S. EPA Region IX and is assessing the relocation of the site. A waiver for closure has been submitted to EPA.

#### **South Long Beach**

SCAQMD has been operating the South Long Beach station as part of the ambient air-monitoring network. Recent construction of the buildings adjacent to the site potentially compromises the siting criteria. During the FY 2016-17 a data comparison between a more centralized monitoring location in Long Beach will be undertaken. If comparison of data between the two locations demonstrates some comparability, or if the metropolitan site shows consistently higher levels of PM, the South Long Beach site may be relocated in consultation with EPA Region IX.

#### **Long Beach (North)**

At the request of the owner, the Long Beach (North) site lease was terminated on September 30, 2013. As a result some pollutants were discontinued while a replacement site is sought. Consideration is being given to consolidation with nearby sites to better represent the Long Beach area.

#### **Azusa**

The Azusa site has been in continuous operation since 1957 and is one of SCAQMD's oldest continuous sites. Since that time the area surrounding the site has changed significantly potential compromising data. The area immediately surrounding the site has become industrialized including a welding shop, and various mechanical shops. Considering the site has been historically one of the highest ozone sites and is in close proximity to quarries it is recommended the site be relocated within one mile downwind of the City of Duarte to more accurately represent the community of Azusa and Duarte.



### **Ontario – Pomona – Upland**

SCAQMD had been operating the Ontario site since January, 1999. Due to the termination of lease by the owner, the site was shut down June, 2014. During recent audits, EPA concluded the Pomona site did not meet established EPA siting criteria and monitoring objectives. The Ontario/Pomona/Upland group of sites is geographically compact showing high degree of comparability in measurements. In 2007 and 2008, Upland recorded the most exceedances of federal and state air quality standards of O<sub>3</sub>, although this area is no longer the highest O<sub>3</sub> region in the basin. The Pomona site is also relatively close to both Ontario and Upland. Given the proximity to other correlated stations and the siting and infrastructure issues mentioned above, the sites could be considered potentially redundant in terms of measurements. It is recommended that considering the closure of Ontario, siting issues at Pomona, and infrastructure issues at Upland that a new centrally located foothill site be considered for consolidation.

### **Costa Mesa**

SCAQMD has been operating the Costa Mesa site since November, 1989. SCAQMD has been notified the facility has been sold and is to be demolished by July 31, 2017. SCAQMD is working to find a suitable location for monitoring within 2.5 miles of the previous location. SCAQMD is in consultation with U.S. EPA Region IX and is assessing the relocation of the site. A waiver has been submitted to EPA.

## **Minimum Monitoring Requirements**

The SCAQMD jurisdictional boundary encompasses two MSAs and two CBSAs whose boundaries and codes mirror those of the MSAs as defined by the U.S. Office of Management and Budget. Los Angeles-Long Beach-Anaheim MSA\CBSA (Code 31080) has an estimated population of 13,131,431 and the Riverside-San Bernardino-Ontario MSA\CBSA (Code 40140) has an estimated population of 4,380,878 according to U.S. Census estimates for 2013. The minimum number of monitors for each pollutant is based on MSA population as described in 40 CFR § 58 Appendix D. The SCAQMD is a Primary Quality Assurance Organization (PQAO) and the network exceeds the minimum monitoring requirements for all criteria pollutants. Details are provided below.

**Table 9 Minimum Monitoring Requirements for Ozone.**

(Note: Refer to section 4.1 and Table D-2 of Appendix D of 40 CFR Part 58.)

MSA	Counties	Population and Census Year	8-hr Design Value (ppb) DV, Years <sup>1</sup>	Design Value Site (name AQS ID)	Monitors Required	Monitors Active	Monitors Needed
30180	Los Angeles Orange	13,340,068 2015	96 2014-2016	Santa Clarita and Glendora 060376012 060370016	4	16	0
40140	San Bernardino Riverside	4,489,159 2015	108 2014-2016	Central San Bernardino Mountains 060710005	3	13	0

<sup>1</sup>DV Years – The three years over which the design value was calculated.

Monitors required for SIP or Maintenance Plan: 29

**Table 10 Minimum Monitoring Requirements for PM<sub>2.5</sub> SLAMS (FRM)**

(Note: Refer to sections 4.71, 4.72, and Table D-5 of Appendix D of 40 CFR Part 58.)

MSA	Counties	Population and Census Year	Annual Design Value [ug/m <sup>3</sup> ], DV & Years <sup>1</sup>	Annual Design Value Site (Name, AQS ID)	Daily Design Value [ug/m <sup>3</sup> ], DV & years	Daily Design Value site (name AQS ID)	# Required SLAMS Monitors	# Active SLAMS Monitors	# Additional SLAMS needed
30180	Los Angeles Orange	13,340,068 2015	12.4 2014-2016	Long Beach Route 710 Near Road 060374008	33 2014-2016	Los Angeles 060371103	3	10	0
40140	San Bernardino Riverside	4,489,159 2015	14.6 2014-2016	Ontario Route 60 Near Road 060710027	39 2014-2016	Mira Loma 060658005	3	9	0

<sup>1</sup>DV Years – The three years over which the design value was calculated.

Monitors required for SIP or Maintenance Plan: 19

**Table 11 Minimum Monitoring Requirements for Continuous PM<sub>2.5</sub> Monitors (FEM and Non-FEM)\***

(FEM/ARM and non-FEM see 40 CFR 58 Appendix D Section 4.72.)

MSA	Counties	Population and Census Year	Annual Design Value [ug/m <sup>3</sup> ], DV & Years <sup>1</sup>	Annual Design Value Site (Name, AQS ID)	Daily Design Value [ug/m <sup>3</sup> ], DV & years	Daily Design Value site (name AQS ID)	# Required Continuous Monitors	# Active Continuous Monitors	# Additional Continuous needed
30180	Los Angeles Orange	13,340,068 2015	17.0 2014-2016	Los Angeles 060371103	42.0, 2014-2016	Anaheim 060590007	2	4-FEM 3-Non FEM	0
40140	San Bernardino Riverside	4,489,159 2015	18.1, 2014-2016	Mira Loma 060658005	42.0, 2014-2016	Mira Loma 060658005	2	3-FEM2 6-Non FEM	0

<sup>1</sup>DV Years – The three years over which the design value was calculated.

Monitors required for SIP or Maintenance Plan: 15

<sup>2</sup>FEM is collocated at the Rubidoux site.

\* Currently all active continuous monitors do not meet acceptance criteria under 78 FR 3086 and is requested to not be compared to the NAAQS.

**Table 12 Minimum Monitoring Requirements for Speciated PM<sub>2.5</sub> Monitors**

(Note: Refer to sections 4.74 of Appendix D of 40 CFR Part 58.)

MSA	Counties	Population and Census Year	Monitors Required <sup>1</sup>	Monitors Active	Monitors Needed
30180	Los Angeles Orange	13,340,068 2015	1	2	0
40140	San Bernardino Riverside	4,489,159 2015	1	2	0

<sup>1</sup>Sites designated as part of the PM<sub>2.5</sub> Speciation Trends Network (STN).

Monitors required for SIP or Maintenance Plan: 4

**Table13 Minimum Monitoring Requirements for PM10**

(Note: Refer to section 4.6 and Table D-4 of Appendix D of 40 CFR Part 58.)

MSA	Counties	Population and Census Year	2016 Max Concentration [ug/m3]	Max Concentration site (name AQS ID)	# Required Monitors	# Active Monitors	# Additional Monitors Needed
30180	Los Angeles Orange	13,340,068 2015	101	Azusa 060370002	2-4 Low Conc	8	0
40140	San Bernardino Riverside	4,489,159 2015	147 <sup>1</sup>	Mecca 060652005	4-8 Med Conc	11	0

Monitors required for SIP or Maintenance Plan: 19

<sup>1</sup>Excluding exceptional wind events.

**Table 14 Minimum Monitoring Requirements for NO2**

(Note: Refer to section 4.3 of Appendix D of 40 CFR Part 58.)

CBSA	Population and Census Year	Max AADT Counts (2015) <sup>1</sup>	# Required Near Road Monitors <sup>2</sup>	#Active Near Road Monitors	#Additional Near Road Monitors Needed	#Required Area Wide Monitors	#Active Area Wide Monitors	#Additional Area wide Monitors Needed
30180	13,340,068 2015	377,600 2015	2	2	0	1	15	0
40140	4,489,159 2015	266,000 2015	2	2	0	1	8	0

<sup>1</sup>Max AADT Counts – 2015 is the latest data available from CA DOT

<sup>2</sup>Four required beginning January 1, 2015.

Monitors required for SIP or Maintenance Plan: 13 (area wide), 4 (near road)

Monitors Required for PAMS: 7

EPA Regional Administrator-required monitors per 40 CFR 58, Appendix D 4.3.4: 3

**Table 15 Minimum Monitoring Requirements for SO<sub>2</sub>**

(Note: Refer to section 4.4 of Appendix D of 40 CFR Part 58.)

CBSA	Counties	Total SO <sub>2</sub> <sup>1</sup> [tons/year]	Population Weighted Emissions Index <sup>2</sup> [million persons-tons per year]	#Active Near Road Monitors	#Required Area Wide Monitors	#Active Area Wide Monitors	#Additional Area wide Monitors Needed
30180	Los Angeles Orange	6,049.52 2014	80,701	0	1	4	0
40140	San Bernardino Riverside	1,289.67 2014	5,790	0	1	2	0

<sup>1</sup>Using latest NEI data 2014, available on EPA website: <https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data>

<sup>2</sup>Calculated by multiplying CBSA population and total SO<sub>2</sub> and dividing product by one million.

Monitors required for SIP or Maintenance Plan: 6

EPA Regional Administrator-required monitors per 40 CFR 58, Appendix D 4.4.3: 0

**Table 16 Minimum Monitoring Requirements for CO**

(Note: Refer to section 4.2 of Appendix D of 40 CFR Part 58.)

CBSA	Population and Census Year	#Required Near Road Monitors <sup>1</sup>	#Active Near Road Monitors <sup>2</sup>	#Required Area Wide Monitors	#Active Area Wide Monitors
30180	13,340,068 2015	1	1	0	16
40140	4,489,159 2015	1	1	0	7

<sup>1</sup>Required beginning January 1, 2015

<sup>2</sup>Required sites to be active by January 1, 2015; to be collocated with near road NO<sub>2</sub> sites.

Monitors required for SIP or Maintenance Plan: 23 (area wide), 2 (near road)

EPA Regional Administrator-required monitors per 40 CFR 58, Appendix D 4.4.2: 0

**Table 17 Minimum Monitoring Requirements for Pb at NCore**

(Note: Refer to section 4.5 of Appendix D of 40 CFR Part 58.)

NCore Site (name, AQS ID)	CBSA	Population and Census Year	# Required Monitors	# Active Monitors	# Additional Monitors Needed
Los Angeles (Main Street) 060371103	30180	13,340,068 2015	1	2 <sup>1</sup>	0
Rubidoux 060658001	40140	4,489,159 2015	1	1	0

<sup>1</sup> - Collocated Monitor.

**Table 18 Source Oriented Pb Monitoring (Including Airports)**

Source Name	Address	Pb Emissions <sup>1</sup> (tons per year)	Emission Inventory Source <sup>2</sup> and Data Year	Max 3-Month Design Value <sup>1</sup> [ug/m3]	Design Value Date(third month, year)	# Required Monitors	# Active Monitors	# Additional Monitors Needed
TAMCO	12459-B Arrow Route, Rancho Cucamonga, CA 91739	Unavailable	NEI 2014	Unavailable	Unavailable	0	1	0
Exide Technologies <sup>3</sup>	4010 E. 2nd St, Vernon, CA 90058	0.006	NEI 2014	0.07	3; 2014	1	2	0
Trojan Battery	9440 Ann St., Santa Fe Springs, CA 90670	0.0096	NEI 2014	0.04	6; 2015	0	1	0
Quemetco Inc.	720 S 7th Ave, City Of Industry, CA 91746	Unavailable	NEI 2014	0.03	6; 2014	0	1	0

(Note: Refer to section 4.5 of Appendix D of 40 CFR Part 58.)

<sup>1</sup>Consider data from past three years.

<sup>2</sup>Using latest NEI data 2014, available on EPA website: <https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data>

<sup>3</sup>Exide facility is current closed.

Monitors Required for SIP or Maintenance Plan: 5

EPA Regional Administrator required monitors per 40 CFR 58, Appendix D 4.5(C) c: 0

**Table 19 Minimum Monitoring Requirements for Pb, Non-Source, Non-NCore Monitoring**

(Note: Refer to section 4.5 of Appendix D of 40 CFR Part 58.)

CBSA	Population and Census Year	Annual Design Value [ug/m3], DV & Years <sup>1</sup>	# Required Area Wide Monitors	# Active Area Wide Monitors	# Additional Monitors Needed
30180	13,340,068 2015	0.01, 2014-2016	0	4	0
40140	4,489,159 2015	0.06 <sup>2</sup> 2014-2016	0	2	0

<sup>1</sup>DV Years – The three years over which the design value was calculated.

<sup>2</sup>Recorded at the Route 10 Etiwanda Near Road site.

**Table 20 Minimum Monitoring Requirements for PAMS**

(Note: Refer to section 4.5 of Appendix D of 40 CFR Part 58.)

Area	Type	# Required PAMS Sites	# Active PAMS Sites	# PAMS Sites Needed
SCAQMD Monitoring Area	1 or 3	1	3	0
	2	1	4	0
	4	0	0	0
	Upper Air Meteorology	1	5	0

**Table 21 Collocated Manual PM2.5, PM10, and Non-NCore Pb Networks**

(Note: Refer to section 3.2.5, 3.3.5, 3.3.1, and 3.3.4.3 of Appendix A, 40 CFR Part 58.)

Pollutant	Method Code	# Primary Monitors	# Required Collocated Monitors	# Active Collocated Monitors
PM2.5 (RAAS)	780, 120	19	3	3
PM10 (SSI Hi-Vol)	063, 102	19	3	3
Pb (TSP Hi-Vol)	110 (Non Source)	8	1	2
Pb (Tsp Hi-Vol)	110 (Source)	5	1	1

**Table 22 Collocated Automated (continuous) PM2.5 Network**

(Note: Refer to section 3.2.5 & 3.3.5 of Appendix A, 40 CFR Part 58.)

Method Code	# Primary Monitors	# Required Collocated Monitors	# Active Collocated Monitors <sup>1</sup>
None	0	0	6

<sup>1</sup>No FEM PM2.5 BAMs are listed as primary monitors; therefore no collocation requirement exists but all are collocated with FRM monitors.

## **Data Submittal and Archiving Requirements**

As required in 40 CFR 58.16(a), data is reported via AQS including all ambient air quality data and associated quality assurance data for SO<sub>2</sub>, CO, O<sub>3</sub>, NO<sub>2</sub>, Near Road NO<sub>2</sub>, NO, NO<sub>y</sub>, NO<sub>x</sub>, Pb-TSP mass concentration, Pb-PM<sub>10</sub> mass concentration, PM<sub>10</sub> mass concentration, PM<sub>2.5</sub> mass concentration, filter-based PM<sub>2.5</sub> FRM/FEM field blank mass, sampler-generated average daily temperature, and sampler-generated average daily pressure, chemically speciated PM<sub>2.5</sub> mass concentration data, PM<sub>10-2.5</sub> mass concentration, meteorological data from NCore and PAMS sites, average daily temperature\average daily pressure for Pb sites and metadata records\information as specified by the AQS Data Coding Manual through December 31, 2016.

A data certification letter has been submitted to the EPA Regional Administrator certifying applicable data collected at all SLAMS and at all FRM, FEM, and ARM SPM stations that meet criteria in appendix A, to part 58, for January 1 through December 31, 2016.